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REPORT FOR MINERAL MATERIALS CO. ON A
MAGNETOMETER SURVEY ON THE BEACON HILL
IRON DEPOSIT, PERSHING COUNTY, NEVADA.
by E. L. Stephenson (December 1953)

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ON A MAGNETOMETER SURVEY
ON THE BEACON HILL IRON DEPOSIT
PERSHING COUNTY, NEVADA

By

E. L. Stephenson
Consulting Geophysicist

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INTRODUCTION

This report covers a magnetometer survey made for Mineral Materials Co. on the Beacon Hill iron deposit, Section 32, T. 26 N., R. 34 E., Pershing County, Nevada. The Beacon Hill property is a group of unpatented lode claims adjoining the east and south sides of the Iron Castle group on which the writer ran a magnetometer grid for Parker Brothers in 1952. The claims lie on a broad low bench of gravel deposited by old Lake Lahontan and the bed rock is entirely covered. Earlier dip needle tests showed strong magnetic reactions on Beacon Hill ground immediately east of the southeast corner of the Iron Castle group, and a large bulldozer cut made by Mineral Materials Co. now partly exposes a body of iron ore that was covered by 10 or 15 feet of gravel.

The present magnetometer survey mainly comprises a detailed grid run in the immediate area of the cut to determine more exactly the position of the ore and the location of faults or other discontinuities within the body, and to check possible

extensions of mineralization east or west of the ends of the cut. In addition a few longer lines were run to check possible easterly extensions of anomalies known to be present on the Iron Castle claims and to test Beacon Hill ground south of the cut. Field work was done during the first week of December 1953. Measurements were made with a temperature-compensated Askania vertical magnetometer having a sensitivity of 50 gammas per scale division.

MAGNETOMETER SURVEY

Plan of the survey

The plan of the magnetometer survey is shown on the accompanying magnetic map. The 0-point of the Beacon Hill grid, located just north of the cut, corresponds with what would be the 800E-500S point of the Parker grid, and the base line is a due east projection of the Parker 500S line. Magnetometer traverses were run normal to the base line at intervals of 25 feet, most of them to 100N and 300S, the detailed grid extending to 150W and 200E. The 200W and 300E lines were added to check possible extensions of the body exposed in the cut. The four primary traverses were extended to 300N to test a possible easterly extension of a known anomaly on Iron Castle ground, and the 0 traverse was run to 800S to determine whether there might be other mineralized zones between the cut and the basalt hill on which the radio beacon is located. For the most part magnetometer stations were occupied at intervals of 25 feet on all of the traverse lines, and 12.5-foot stations were added on the central lines at and near the peak of the main anomaly within the cut. Additional closely spaced stations also were added in the highly disturbed zone near the 75E line to obtain greater magnetic detail.

Results of the survey

The results of the magnetometer survey are shown on the magnetic map, drawn on a scale of 50 feet to the inch and contoured on an interval of 5,000 gammas within the main anomaly and 1,000 gammas elsewhere, and on the sheet of magnetic profiles, plotted on a horizontal scale of 100 feet to the inch and a vertical scale of 5,000 gammas to the inch.

The chief magnetic feature is a strong positive anomaly associated with the ore body in the cut, centering approximately along the 100S grid line. The general anomaly is well outlined by the 4,000- and 5,000-gamma contours. In detail, as shown by the profiles and the higher value contour lines, the magnetic peaks are sharp and narrow and they vary both in position and strength from line to line. The variations probably are due partly to irregularities in deposition of the magnetite and partly to faulting. The symmetry of the peaks indicates a nearly vertical attitude for the body, as a whole, although on some lines there is a suggestion of a steep dip to the south. The lack of negative values, except those associated with faults, indicates that the body extends to considerable depth.

The magnetic peak on the 25E line is relatively weak, and broadly the readings indicate two main blocks of ore, one lying mainly between the 0 line and the 75W line and the other mainly between the 50E and 100E lines. There may be a fault near the 25E line, or the change may be due largely to pinching of the ore. As indicated by the 15,000-gamma contour, the peaks of the

west block follow a curved pattern which may indicate simply a northerly bulge of ore in the center of the block. On the west the anomaly tapers out quickly, as indicated by the contrast between the 75W and 100W profiles, although the mineralized zone is marked by a faint positive anomaly extending as far as the 200W line. Actually, on a broader basis it may be noted that the Beacon Hill anomaly is the easternmost one within a broad mineralized zone that extends a long distance westward and northward in Iron Castle ground.

The eastern block, which shows the highest and sharpest magnetic peaks, including several beyond the 31,000-gamma range of the magnetometer, is faulted and offset 12 or 15 feet near its center, the shift being northward on the east. The very strong and sharp magnetic lows shown on the contour map indicate a northwesterly strike of the main fault. To the east the sharp positive peak continues strong through the 100E line. Just beyond this point it diminishes abruptly in magnetic strength and swings sharply southeastward, finally tapering out beyond the southeast corner of the cut. That the mineralized zone ends here is shown by the 300E profile, which shows no positive anomaly whatever between the base line and the 400S point.

The main anomaly in the cut lies near the north side of a broad magnetic high that reaches uniform values a little above 3,000 gammas over a broad area in the south central part of the grid. The long southerly extension of the 0 traverse shows gradually diminishing magnetic intensity until normal regional

values are reached near the north edge of the basalt hill. The magnetic pattern indicates that the highly mineralized zone in the cut is associated with a broad area of increased magnetite content in the country rocks, a condition found at many places in the Buena Vista iron district, but there is no indication of other ore zones south of the cut.

Over most of the grid area north of the cut the magnetic intensity decreases quickly to approximate regional values, and there is no magnetic indication of additional highly mineralized zones. The positive anomaly in the northwest corner of the grid, which approaches 5,000 gammas on the 100W line, is the east end of a branch of the broad mineralized zone on the Iron Castle ground. The extreme end of the anomaly is marked by a small peak on the O traverse, but the present readings show that the zone extends only a short distance east of the Iron Castle end line and does not appear on the 100E and 200E lines of the Beacon Hill grid.

SUMMARY

The Beacon Hill magnetometer survey shows a strong narrow positive magnetic anomaly over the iron ore body exposed in the bulldozer cut. The anomaly occurs near the north edge of a broad area of increased magnetic intensity lying between the cut and the basalt hill. The anomaly is the easternmost one within a complex mineralized zone that extends a long distance westward and northward across the adjoining Iron Castle ground. A much weaker positive anomaly in the northwest corner of the Beacon Hill grid is the extreme east end of a branch of the same complex mineralized zone.

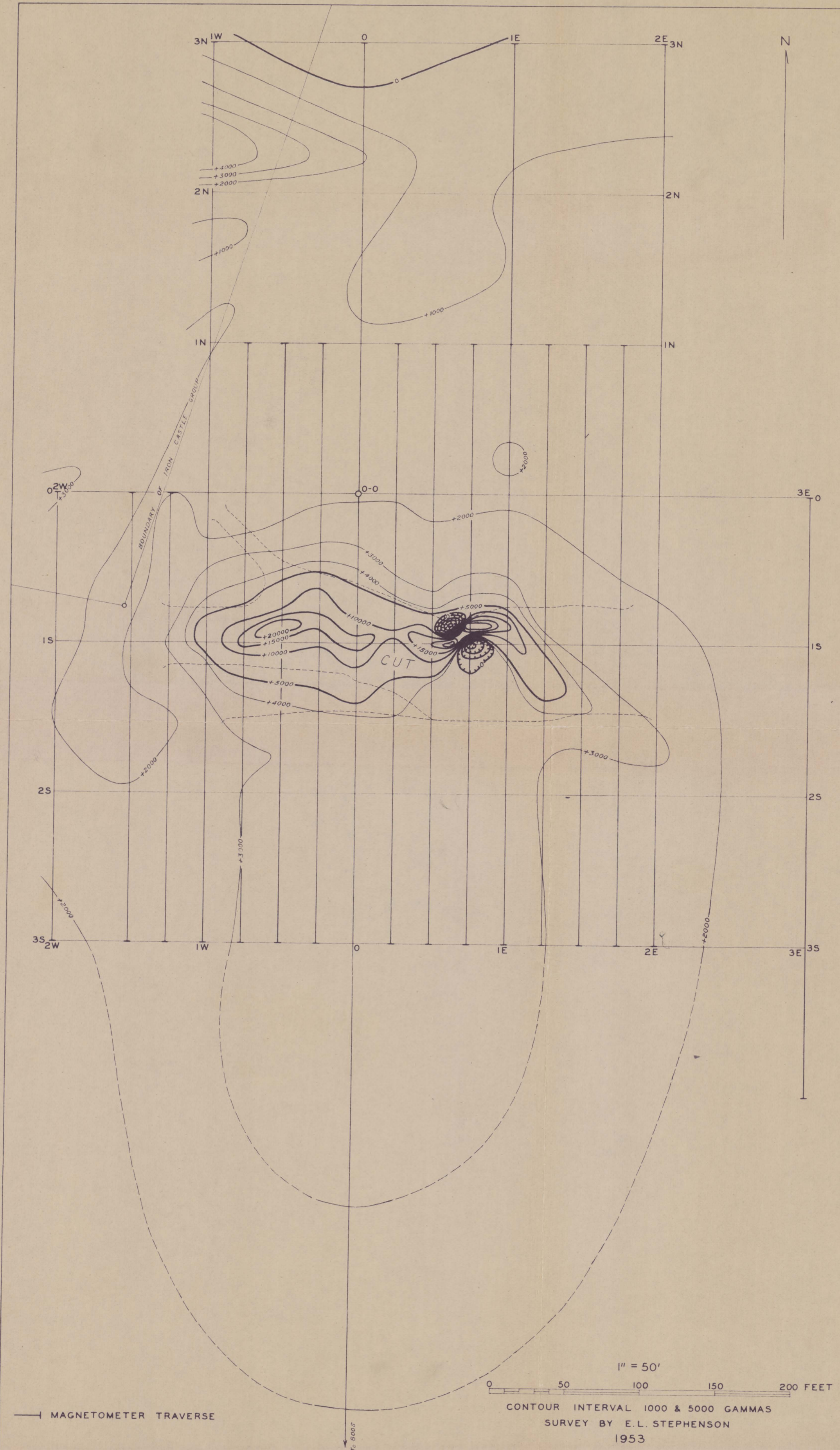
The main anomaly as a whole indicates that the ore body is nearly vertical and that it extends to considerable depth. In detail the traverses show variations in the position and strength of the magnetic peak, probably due both to irregularity in deposition of the magnetite and to faulting. Magnetically the ore body is divided into two blocks, one lying mainly between the 0 and 75W lines and the other mainly between the 50E and 100E lines. This magnetic separation near the 25E line may be due to faulting or, more likely, to pinching of the body. The west block has a somewhat curved pattern but is fairly uniform. The east block is broken and offset by faulting of probable northwest strike near the 75E line.

The ore body as a whole cuts off abruptly near the west end of the cut. On the east the anomaly swings sharply southeastward and tapers somewhat more gradually, but it ends a short distance southeast of the east end of the cut. The 200W and 300W traverses show little or no magnetic indication of mineralization. Similarly, the traverse extensions northward and southward of the detailed grid show no evidence of other strongly mineralized zones on Beacon Hill ground.

Reno, Nevada
December 1953

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MAGNETIC MAP OF THE BEACON HILL IRON DEPOSIT, PERSHING CO., NEV. 283

032-027-0387

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